

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-18 (canceled)

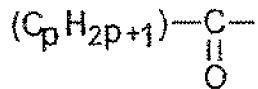
Claim 19 (previously presented): A molecule of general formula (I), and the pharmaceutically acceptable salts thereof:

$(X_0)_{x0}-(X_1)_{x1}-(X_2)_{x2}-X_3-(X_4)_{x4}-X_5-X_6-(X_7)_{x7}-(X_8)_{x8}-(X_9)_{x9}$

(I)

in which

- $x_0$ ,  $x_1$ ,  $x_2$ ,  $x_4$ ,  $x_7$ ,  $x_8$  and  $x_9$  each represent, independently, an integer equal to 0 or to 1;
- $X_0$  represents a group:



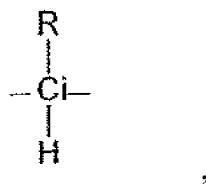
with p ranging from 3 to 23;

- $X_1$  and  $X_3$  each represent a natural or synthetic amino acid in the L or D configuration, each comprising at least one hydroxyl function on its side chain;
- $X_2$  represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an alkyl side chain;
- $X_4$  represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an aromatic side chain;
- $X_5$  represents an amino acid in the L or D configuration chosen from lysine, arginine, histidine, aspartic acid, asparagine, glutamic acid and glutamine;
- $X_6$  represents an amino acid in the L or D configuration chosen from tyrosine, phenylalanine, leucine, isoleucine, alanine, *para*-benzoylphenylalanine and lysine;

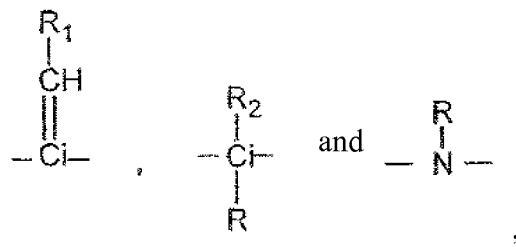
- $X_7$  represents an amino acid in the L or D configuration chosen from glycine, alanine, leucine, valine, asparagine and arginine;
- $X_8$  represents an amino acid in the L or D configuration chosen from proline, valine, isoleucine and aspartic acid;
- $X_9$  represents an amino acid in the L or D configuration chosen from serine, alanine, lysine, arginine and tryptophan;
- the bond between two successive amino acids  $X_i-X_{i+1}$ , denoted  $q_{i \text{ to } i+1}$ ,  $i = 1 \text{ to } 8$  can be a peptide

O  
 $\parallel$   
bond  $-\text{C}-\text{NH}-$  or a pseudopeptide bond chosen from: CO-O, CO-S, CO-CH<sub>2</sub>, CO-N(Me), NH-CO, CH=CH, CH<sub>2</sub>-CH<sub>2</sub>, CH<sub>2</sub>-S, CH<sub>2</sub>-O, CS-NH, CH<sub>2</sub>-NH, CO-CH<sub>2</sub>-NH, CO-NH-NH, CO-NH-N= and CO-N(NH<sub>2</sub>);

- the amino acids stated above  $X_i$ ,  $i = 1 \text{ to } 9$  being capable of comprising a modification of their  $\alpha$ -carbon, denoted  $C_i$ ,  $i = 1 \text{ to } 9$  and bearing the side chain R of the amino acid, which modification consisting of the replacement of:



with a group chosen from:



the groups R and CH-R<sub>1</sub> representing the side chain of the amino acid and R<sub>2</sub> representing a C<sub>1</sub>-C<sub>6</sub> alkyl group; R-R<sub>2</sub> can constitute a ring,

- the pseudopeptides of the invention also corresponding to the following conditions:

$x_0$  is equal to 1

or

one of the bonds  $q_{i \text{ to } i+1}$ ,  $i = 1 \text{ to } 8$  is a pseudopeptide bond

or

one of the  $C_i$ ,  $i = 1$  to 9 comprises one of the modifications stated above, wherein said molecule of formula (I) is capable of modulating the proteasome.

Claim 20 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions is verified:

at least one of the integers  $x_0$ ,  $x_1$ ,  $x_2$ ,  $x_4$ ,  $x_7$ ,  $x_8$  and  $x_9$  is equal to 1;

$X_1$  and  $X_3$ , which may be identical or different, are chosen from threonine and serine;

$X_2$  is chosen from valine, leucine and isoleucine; or

$X_4$  is chosen from phenylalanine, tryptophan, tyrosine and *para*-benzoylphenylalanine.

Claim 21 (previously presented): The molecule as claimed in claim 20, comprising 4 to 8 amino acids.

Claim 22 (previously presented): A molecule as claimed in claims 19 to 21, wherein  $x_0 = 1$ .

Claim 23 (canceled)

Claim 24 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions are verified:

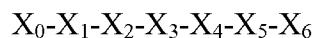
-at least one of  $X_1$  and of  $X_3$  represents threonine,

- $X_2$  is chosen from isoleucine and valine,

- $X_4$  is chosen from phenylalanine, tyrosine and *para*-benzoylphenylalanine, or

-at least 2 of the integers  $x_0$ ,  $x_1$ ,  $x_2$ ,  $x_4$ ,  $x_7$ ,  $x_8$  and  $x_9$  are equal to 1.

Claim 25 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ia):



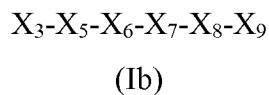
(Ia)

in which the bonds  $q_{i \text{ to } i+1}$  between the amino acids  $X_i$  and  $X_{i+1}$ ,  $i = 1 \text{ to } 5$  are peptide or pseudopeptide bonds.

Claim 26 (canceled)

Claim 27 (canceled)

Claim 28 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ib):



in which:

- at least one of the bonds between two successive amino acids is a pseudopeptide bond,
- or
- one of the  $\alpha$ -carbons of one of the amino acids is a modified  $\alpha$ -carbon.

Claim 29 (currently amended): The molecule as claimed in claim 19, wherein the molecule is:

$CH_3-(C_nH_{2n})-CO-TV TY DY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TI SY DY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TV SY KF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TITF DY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TITY KF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TITY EY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TITY DF$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TV TY KL$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $CH_3-(C_nH_{2n})-CO-TV TY KY$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;

$\text{CH}_3-(\text{C}_n\text{H}_{2n})-\text{CO-TVTFKF}$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $\text{CH}_3-(\text{C}_n\text{H}_{2n})-\text{CO-TITYDL}$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $\text{CH}_3-(\text{C}_n\text{H}_{2n})-\text{CO-TVTFDY}$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $\text{CH}_3-(\text{C}_n\text{H}_{2n})-\text{CO-TVTFKF}$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
 $\text{CH}_3-(\text{C}_n\text{H}_{2n})-\text{CO-TVTYKF}$  with  $n=4, 6, 8, 10, 12, 14, 16, 18$ ;  
TNL\*GPS;  
SEK\*RVW;  
TRA\*LVR;  
SNL\*NDA; or  
THI\*VIK;

~~Ava represents a  $\delta$ -aminovaleric acid group,~~

~~Bpa represents a para-benzoylphenylalanine group; and~~

wherein \* represents:

-a bond chosen from ester, thioester, keto methylene, keto methyleneamino, N-methylamide, inverse amide, Z/E vinylene, ethylene, methylenethio, methyleneoxy, thioamide, methyleneamino, hydrazino, carbonylhydrazone and N-amino bonds, or -the presence of an aza-amino acid as a substitution for one of the amino acids adjacent to \*.

Claim 30 (previously presented): The molecule as claimed in claim 19 coupled on its C-terminal end and/or on its N-terminal end with another molecule which promotes its bioavailability.

Claim 31 (previously presented): A composition comprising the molecule as claimed in claim 19 in a pharmaceutically acceptable carrier.

Claim 32 (currently amended): A method for ~~prevention and~~ treatment of a disorder or a pathology associated with proteasome activity comprising administering to an animal in need thereof a molecule as claimed in claim 19.

Claim 33 (currently amended): The method of as claimed in claim 32, wherein the disorder or pathology is selected from: cancers involving hematological tumors or solid tumors; autoimmune diseases; AIDS; inflammatory diseases; ~~cardiac pathologies; pathologies associated with the consequences of ischemic processes at the myocardial, cerebral or pulmonary level;~~ allograft rejection; and amyotrophy; ~~cerebral strokes; traumas; burns; and pathologies associated with aging.~~

Claim 34 (previously presented): A method for radiosensitizing a tumor comprising contacting the tumor with a compound as claimed in claim 19.

Claim 35 (previously presented): A cosmetic and/or dermatological composition comprising a molecule as claimed in claim 19, in a cosmetically and/or dermatologically acceptable carrier.

Claim 36 (previously presented): A cosmetic process for preventing or treating the appearance of effects of chronological skin aging and/or of photoaging, comprising applying to skin the molecule as claimed in claim 19 in a cosmetically acceptable carrier.

Claim 37 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 5 to 7 amino acids.

Claim 38 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 6 amino acids.

Claim 39 (previously presented): The molecule as claimed in claim 24, wherein at least 3 of the integers  $x_0, x_1, x_2, x_4, x_7, x_8$  and  $x_9$  are equal to 1.

Claim 40 (currently amended): The molecule as claimed in claim 19 26, wherein p ranges from 2 to 6.

Claim 41 (currently amended): The molecule as claimed in claim 19 27, wherein p ranges from 5 to 19.

Claim 42 (previously presented): The method as claimed in claim 32, wherein the animal is a human.

Claim 43 (currently amended): The method as claimed in or of claim 32 33, wherein the ~~pathologies associated with aging are chosen from disorder~~ is Alzheimer's disease and Parkinson's disease.

Claim 44 (previously presented): A method for modulating the proteasome of a cell comprising administering the molecule of claim 19 to a cell.

Claim 45 (currently amended): The molecule as claimed claim in claim 19, wherein X<sub>1</sub> and X<sub>3</sub> both represent threonine.